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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 10/518,545
Filing Date: February 08, 2006
Appellant(s): DA SILVA NETO, UGENIO FERREIRA

Felix J. D'Ambrosio
Reg. No. 25,721
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/2/2010 appealing from the Office action

mailed 12/2/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under

appeal.

US 2003/0208290	Gillen	February 15, 2001
US 5,805,442	Crater	May 30, 1996
US 6,598,165	Galasso	June 18, 1999
US 7,266,848	Moyer	March 18, 2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.   Claims 12 -15 and 17- 22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gillen (US Patent Publication No. 2003/0208290) in view of Crater et

al. (US Patent No. 5,805,442) and further in view of Galasso (US Patent No. 6,598,165).

2.   As to claim 12, Gillen teaches a method for providing protection from

unauthorized access to a field device (i.e., microcontroller) in process automation

technology (i.e., ... teaches a microcontroller whose control program is protected from

being read out [par. 12]), whereby the set parameters of the function block (i.e., Gillen

teachings of a control program are considered by one of ordinary skill in the art as a

function block [par. 28]) and the field device determine the functionality of the field

device and allow the execution of complicated control procedures while interacting with

 other field devices connected to the data bus (e.g., Fieldbus [par. 27]) (i.e., ...teaches a

control program for controlling (e.g., allow) execution of microcontroller [par. 28]), the

method comprising the steps of: performing an authorization examination (i.e., self-

monitoring) in the case of accessing the parameters of the function block (e.g., control

program) or the field device over the data bus (e.g., field bus connection [par. 27]) (i.e.,

.... teaches the control program stored in the field device performs self- monitoring

operations thereby allowing the enabling and disabling of device features (e.g.,

accessing the parameters) being monitored [par. 28; par. 29)]; and permitting a change

(i.e., activating basic function) in the parameters of the function block (e.g., control

program) or the field device (i.e., microcontroller) or a replacement of the function block

by the control unit over the data bus (e.g., field bus connection [par. 27]) only in the case when the authorization is available (i.e., ...teaches an authorization examination [par. 33] consisting of an identifier Ki of the software protection device 26.sub.Vi is interrogated by the control unit [par. 34] .... further teaches if the value X2 transmitted by the software protection device 26.sub.Vi to the control unit 16 does not correspond to the value X1, then only certain basic functionalities are activated [par. 38]).

With regards to applicant's claim limitation element of whereby the field device is connected over a data bus with a remote control unit, the field device comprises at least one function block with defined communication interfaces, the Examiner contends Gillen discloses a field device with a control unit (e.g., function block) operable to interface and communicate via a bus (e.g., CAN, FieldBus). See Gillen paragraphs 27-29. However, Gillen does not expressly teach applicant's claim limitation element of "connected over a bus with a remote control unit". However, at the time of applicant's original filings such a remote control connection was disclosed by prior art reference Crater. Crater disclosed a remote control unit connected to a bus operable to control operation for an end device [abstract]. Therefore, given the teachings of Crater, a person having ordinary skill in the art at the time of the invention would have recognized the desirability and advantage of modifying Gillen by employing the well known feature of field device function block architecture as disclosed above by Crater, for which field device access authorization will be enhanced [abstract].

The combination of Gillen and Crater does not teach: storing in the field device or function block a security program. However, these features are well known in the art and would have been an obvious modification of the system disclosed by the combination of Gillen and Crater as introduced by Galasso. Galasso discloses: storing in the field device or function block a security program (to provide the capability to store a security program Galasso provides security firmware which prevents the modifying of content base on proper authorization [col. 1, lines 50-57]).

Therefore, given the teachings of Galasso, a person having ordinary skill in the art at the time of the invention would have recognized the desirability and advantage of modifying the combination of Gillen and Crater by employing the well known features of storing a security program in a field device as disclosed above by Galasso, for which field device access authorization will be enhanced [col. 1, lines 50-57].

3.   As to claims 13 and 14 the system disclosed by the combination of Gillen and Crater shows substantial features of the claimed invention (discussed in the paragraph above), but fails to disclose:

A method where: the security program is part of a function block (claim 13).

A method where: the security program is part of firmware stored in the field device (i.e., microprocessor) (claim 14).

However, these features are well known in the art and would have been an obvious

modification of the system disclosed by the combination of Gillen and Crater as

introduced by Galasso. Galasso discloses:

A method where: the security program is part of a function block (claim 13) (to

include security protection as part of a firmware stored on a field device [fig. 1].

A method where: the security program is part of firmware stored in the field

device (i.e., microprocessor) (claim 14) (to store security firmware in field devices [col.

1, lines 50-57]).

Therefore, given the teachings of Galasso, a person having ordinary skill in the art at

the time of the invention would have recognized the desirability and advantage of

modifying the combination of Gillen and Crater by employing the well known features of

storing security programs in a field device disclosed above by Galasso, for which field

device access authorization will be enhanced [col. 1, lines 50-57].

4.   As to claim 15, Gillen teaches a method where the security program includes a

security key (i.e., identifier), which is stored in the field device during configuration of the

field device (i.e., microcontroller) [par. 36].

5.   As to claim 17, Gillen teaches a method where the security key is created during

installation of the field device [par. 7].

6.   As to claim 18, Gillen teaches a method where the security key (i.e., identifier) is

provided by the field device [par. 39]. 8. As to claim 19, Gillen teaches a method where:

the security key (i.e., identifier) is regularly renewed [par. 38].

7.   As to claim 20, teaches a method where: the security key (i.e., identifier) is

renewed hourly [par. 38]. 10. As to claim 21, Gillen teaches a method where: the

security key (i.e., ...identifier) is stored only in the field device [par. 36].

8.   As to claim 22, Gillen teaches a method where: the field devices (e.g., EEPROM)

are sensors, actuators, controllers, PLCs or gateways [par. 25].

9.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the

combination of Gillen and Crater in view of Galasso, as applied to claim 12 above,

further in view of Moyer (US Patent No. 7,266,848 and Moyer hereinafter).

10.   As to claim 16 the system disclosed by Galasso shows substantial features of the

claimed invention (discussed in the paragraph above), but fails to disclose: A method

where: the security key is an at least 128-bit code.

However, these features are well known in the art and would have been an obvious

modification of the system disclosed by the combination of Gillen and Crater in view of

Galasso as introduced by Moyer. Moyer discloses:

A method where: the security key is an at least 128-bit code (to provide a variable length security key capability [col. 3, lines 23-26]).

Therefore, given the teachings of Moyer, a person having ordinary skill in the art at the time of the invention would have recognized the desirability and advantage of modifying the combination of Gillen in view of Crater and Galasso by employing the well known features of a variable length security key above by Moyer, for which field device access authorization will be enhanced [col. 3, lines 23-26].

(10) Response to Argument

.1. Independent claim 12

First, the Appellant asserts on page 2, lines 13-16 the following:

> "It was emphasized that Gillen does not teach a field device connected over a data bus with a remote control unit with the field device comprising at least one function block with defined communication interfaces. To this distinction the examiner refers us to paragraph 27 of Gillen and suggests that the teaching in this paragraph "describes the element of remote control of a field device containing software logic .... via bus interface." There is an assumption here that the "control center" disclosed in paragraph 27 is a "remote" control center. This is not necessarily the case.. In fact, it is unlikely the case because of the reliance to Siemens ASIC (Application Specific Integrated Circuit) which are not used for remote applications. The examiner is guessing, and that is not permitted Under 35 USC 103".

With regard to Appellant's argument of: "...It was emphasized that Gillen does not teach a field device connected over a data bus with a remote control unit with the field device comprising at least one function block with defined communication interfaces", the Examiner respectfully submits Appellant discloses that a function block is a

programmable/configurable means to determine/govern the behavior of a field device.

See Appellant's paragraph 25. The Examiner notes Gillen discloses using a "control

unit" (e.g., function block) operable to run on a device for the purpose of rendering that

device operational in a prescribed manner. See Gillen paragraph 27 and 28. With

regard to Appellant's claim limitation element of: "... a field device connected over a data

bus with a remote control unit with the field device", the Examiner notes that Gillen

discloses that the "control unit" possess the capability to communicate via a data-bus

communication line. See Gillen paragraph 27. Additionally, the Examiner notes while

Gillen discloses basic remote communication capability over a bus, prior art reference

Crater provides for remote communication for the purpose of controlling the device

remotely as explicitly claimed in Appellant's independent claim 12. The compelling

suggestion the Examiner contends for those skilled in the art to combine Gillen and

Crater is that Crater's remote communication capability is an enhancement over Gillen's

capability and that it enables through the enhancement the ability for Gillen's device to

be controlled remotely. With regard to Appellant's claim limitation element of: "...at

least one function block with defined communication interfaces", the Examiner notes

Gillen discloses that the "control unit" (e.g., function block) communicates via an

interface to a remote entity. See Gillen paragraph 27.

Second, the Appellant asserts on page 5, lines 1-5 the following:

> " For the record, it was also noted that Gillen does not teach that the set of
> parameters of the function block and the field device determine the functionality
> of the field device and allow the execution of complicated control procedures
> while interacting with other field devices connected to the data bus.".

The Examiner respectfully submits that Gillen discloses a "control unit" (e.g., function block) for governing the function of a device. See Gillen paragraph 27 and 28. Gillen further discloses a "control program" resident to the "control unit"; the "control program"/"control unit" possessing the capability to receive a parameter input described by Gillen as a "software protection device" to configure the device for desired operation. See Gillen paragraph 29. The Examiner notes Gillen discloses that the device may perform various different operations (e.g., complicated control procedures) depending on the "software protection device" parameter input to the "control program"/"control unit". See Gillen paragraphs 28 and 29. In this instance, the Examiner considers Gillen's various different operations of V1 and V2 as described in paragraph 28 of Gillen's specification to be equivalent to Appellant's "complicated control procedures" on the basis that V1 and V2 determine how the device will function (e.g. interact) with other communicating (e.g., via data bus) devices.

Third, the Appellant asserts on page 5, lines 9-14 the following:

> " Claim 12 defines three steps and not just structure. Gillen does not disclose these steps, and the combination of Gillen with Crater et al and also Galasso also falls short of the claimed invention".

The Examiner respectfully submits the three steps for which Appellant is referring to are the claim limitation elements of independent claim 12 which read:: " storing in the field device or in the function block a security program; performing an authorization examination in the case of accessing the parameters of the function block or the field

device over the data bus; and permitting a change in the parameters of the function

block or the field device or a replacement of the function block only in the case when the

authorization is available". With regard to Appellant's claim limitation of, "storing in the

field device or in the function block a security program", the Examiner respectfully

submits that the combination of Gillen, Crater and Galasso, specifically Galasso

discloses storing a security program in memory. See Galasso column 2, lines 35-50.

With regard to Appellant's claim limitation of, "performing an authorization examination

in the case of accessing the parameters of the function block or the field device over the

data bus"; the Examiner respectfully submits that the combination of Gillen, Crater and

Galasso, specifically Gillen discloses a control program of a control unit (e.g., function

block) stored in the field device performs self-monitoring (e.g., authorization

examination) operations thereby allowing the enabling or disabling of device features

such as bus updates (e.g., accessing the parameters). See Gillen paragraph 28 & 29.

With regard to Appellant's claim limitation of, "permitting a change in the parameters of

the function block or the field device or a replacement of the function block only in the

case when the authorization is available", the Examiner respectfully submits that the

combination of Gillen, Crater and Galasso, specifically Galasso discloses logic to allow

updating upon successful authorization. See Galasso figure 2.

2. Dependent Claim 16

Appellant asserts on page 5, lines 23-26 the following:

"Claim 16 depends from claim 12 and further defines the security key. Even if the 128-bit code is taught by the references, they do not, it is respectfully submitted teach the steps of claim 12 as noted above".

The Examiner notes claim 16 is rejected under Gillen, Crater, Galasso and Moyer.

Specifically, prior art reference Moyer discloses the use of a security key as part of an

access control/authentication process for safe guarding the programmable/configurable

features of a device.

Additionally, Appellant asserts on page 5, lines 27-30 the following:

" The art cited in this prosecution is no doubt analogous. But that is not enough under 35 USC 103. There must be a suggestion that compels the combination found in the references themselves. See, In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984). This compelling suggestion is missing, and without it, obviousness does not lie".

The Examiner respectfully notes that prior art reference Gillen discloses the use of a

"control unit" (e.g., function block) within a device (e.g., field device) and that the

"control unit" governs the functionality of the device by way of a "software protection

device" parameter input to the "control program" resident on the "control unit". The

Examiner further notes that Gillen discloses that the "control unit" has basic bus

communication capability. While Gillen discloses basic bus communication capability,

prior art reference Crater provides remote bus communication capability such that a

control signal can be sent (e.g., communication) over a bus for the purpose of

controlling an operation to an end device (e.g., field device). The Examiner contends

that those of ordinary skill in the art would appreciate that such teachings as disclosed

by Crater are an enhancement over Gillen basic bus communication teachings and that

such an enhancement allows for a configuration operation (e.g., updating parameters) to a end device to be facilitated remotely. Additionally, the Examiner respectfully submits that the compelling suggestion to those skilled in the art to combine Gillen and Crater with the teachings of Galasso is that while Gillen discloses an authentication process for configuration changes, Galasso provides a more comprehensive authentication process to authentication/interrogate of new updates (e.g. "control program updates/ parameters) to the "control unit" allowing for greater update access management and control.

The Examiner notes as it pertains to claim 16, Moyer affords an enhancement over the present authentication/interrogation process for new updates disclosed by the system of Gillen, Crater and Galasso because Moyer utilizes a security key to gain access to the controller (e.g., control unit). The Examiner notes without the proper security key, access for the purpose of updates (e.g., parameter updates) to the controller (e.g., control unit) can not take place. The Examiner respectfully submits that those skilled in the art would realize that Moyer's security means would be a logical extension of Galasso if one of ordinary skill in the art desires a more restrictive means for controller access.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejection should be sustained.

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